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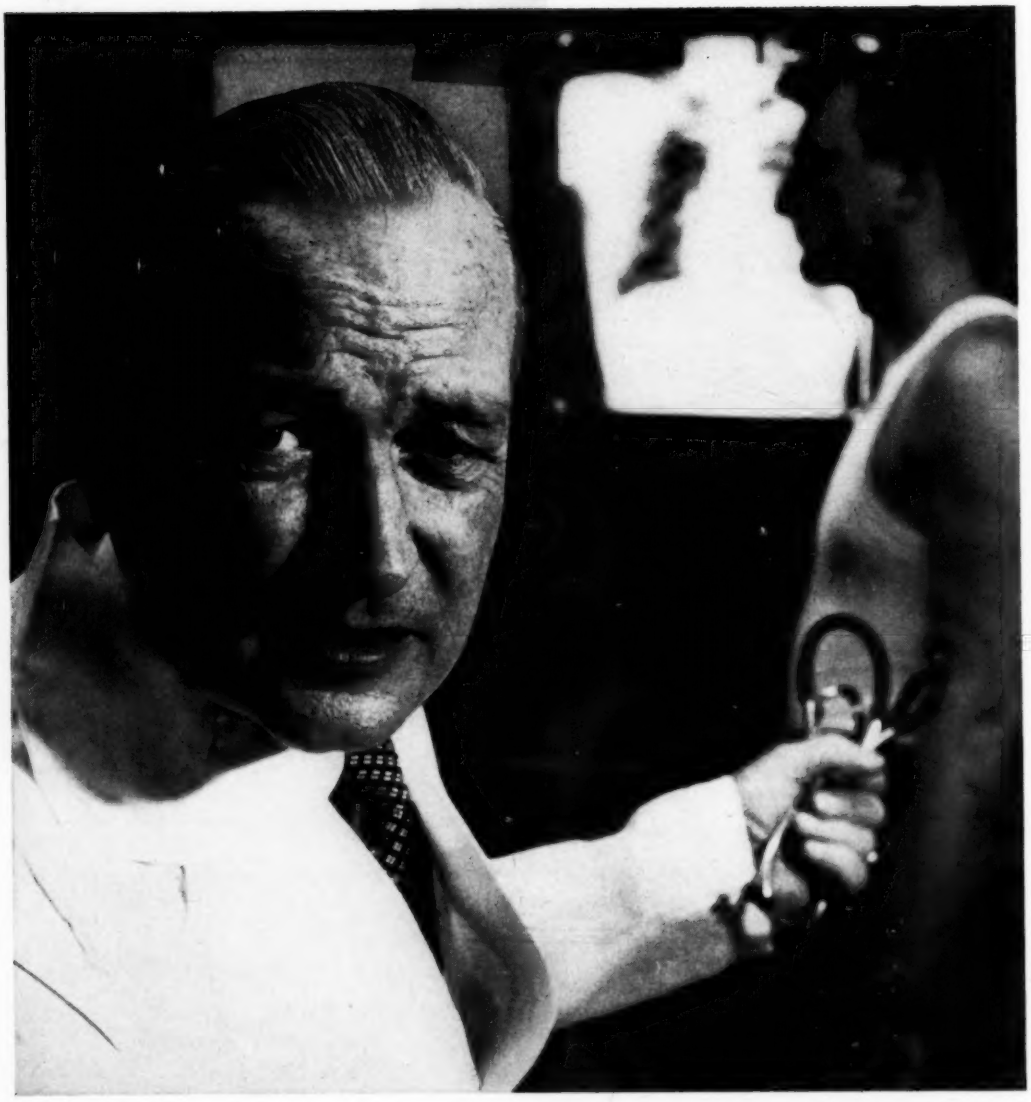

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INTERAURICULAR SEPTAL DEFECTS

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Defects of the interauricular septum are among the more common congenital cardiac anomalies. In a large series of congenital heart defects, Abbott found these septal anomalies to be more numerous than any other type of lesion.[1] Uncomplicated interatrial septal defects have been said to occur in fifteen to twenty per cent of cases of congenital cardiac disease.[2] In the Cardiac Clinic at the Medical College of South Carolina since January of 1950 there have been seen 95 cases of interauricular septal defect. During the same period there have been seen 103 cases of patent ductus arteriosus and 107 cases of interventricular septal defect. Also during this time there were 55 cases of tetralogy of Fallot. Although these figures are not necessarily a true representation of the relative occurrence of these lesions, this would indicate that interauricular septal defects occur frequently in the potentially cyanotic congenital cardiac disease group.

The prognosis in interatrial septal defect is better than in other congenital cardiac lesions. The average duration of life in a series reviewed by Tinney was 36 years. The causes of death in his series were atrial fibrillation, pulmonary infections, and cardiac decompensation.[3] Other authors place the average year of death about 35 years but state that half of the patients live beyond the age of 50. This anomaly can be well tolerated in some patients to the age of 70 or 80. Bailey states that his group has found no correlation between the size of atrial septal defects and the duration of life.

The embryology involved in the various forms of atrial septal defects is important in the clinical evaluation and surgical treatment of the lesion. The septum primum, presenting itself as a membrane, extends downward from the superior posterior wall of the atrium and divides the atrium into right and left chambers during the fourth week of fetal life. The lower margin of the septum primum has a crescent-shaped defect which is the ostium primum. A second opening, the ostium secundum, appears in the upper portion of the septum primum shortly after its formation. Later, the septum secundum is formed slightly to the right of the septum primum and fuses with it. It leaves an opening, the foramen ovale, which functions as the circulatory pathway in the fetus and is usually closed by the fifth or sixth week after birth. The ostium primum is normally closed in the same period by a downward growth of the septum primum and fusion with the endocardial cushion dividing the auricles. At the age of three months, 98 per cent of normal individuals have a functionally closed foramen ovale. Lewis and his co-workers have classified the defects of the atrial septum as follows:

1. foramen ovale defects,
2. high defects,
3. continuous defects of both foramen ovale and the high septum,
4. low defects.[4]

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The interauricular septal defect may frequently have incomplete septal rings and may be difficult to find at operation. The closure of low defects by surgical means to date has been very unsatisfactory. All of these low defects have in common evidence of a persistent common atrial ventricular canal. This common canal may remain as no more than a notching of the mitral valve. Closure of these defects may result in injury to the atrioventricular node and result in complete heart block. Repair of this type of defect also may frequently result in damage to the heart valves. Many cases with a significant atrial septal defect have complications manifested by a valvular lesion. The combination of an atrial septal defect with mitral stenosis, known as Lutenbacher's syndrome, has been found to be relatively rare and occurs in only 6 per cent of all atrial septal defects.

The symptoms of an atrial septal defect are extremely variable. There may be no significant symptoms, but when present, the most common are exertional dyspnea, palpitation, easy fatigueability, or weakness. Children are particularly prone to have frequent and severe respiratory infections superimposed upon the pulmonary congestion present in septal defects. Cyanosis and clubbing are usually absent when the predominant shunt is from left to right, but occasionally in later stages cyanosis of some degree may be noted when there is a reversal of flow through the defect. These patients are often underdeveloped, slender, and even infantile. Atrial septal defects represent the only congenital cardiac anomaly which is frequently associated with paroxysmal tachycardia and auricular fibrillation. Extrasystoles, atrial flutters, ventricular escape and atrioventricular disassociation have been recorded. Dexter lists some of the more common complications of atrial defects as: 1) cyanosis tardive or late cyanosis which appears with the reversal of the shunt when the pressure in the right atrium exceeds that in the left; 2) pulmonary vascular disease; 3) right ventricular failure; 4) left ventricular failure, which was noted in 14 of 60 cases; and 5) mitral stenosis which is rare.[5]

On physical examination inspection of the chest wall frequently reveals a bony prominence and a bulging of the left side of the sternum in the adjacent rib cage. Palpation and percussion often reveal enlargement of the heart with the apex being displaced downward to the left with the right border to the right side of the sternum. The blood pressure is usually within normal range. There is frequently a widened pulse pressure and a bounding peripheral pulse. Extrasystoles are very common. Murmurs present in patients with interauricular septal defects vary to a significant degree. The pulmonic sound is often accentuated. There may be little or no murmur in infancy and early childhood but the majority of patients present a systolic murmur which is heard widely over the precordium and is most intense in the second or third interspace to the left of the sternum. It is thought to be due to the increased blood flow through the pulmonary valve orifice or a relative pulmonic stenosis. Friedberg reports that in about one third of the cases there is an apical diastolic murmur. This is not due to an associated mitral stenosis but probably to a functional or relative tricuspid stenosis caused by the large blood flow through the tricuspid orifice. In cases of ostium primum there are associated low pitched diastolic murmurs in the tricuspid region because of the very marked increase in blood flow through the functional tricuspid stenosis. With the development of congestive heart failure, cervical veins become very prominent and in the cases of atrial fibrillation there may be a systolic pulse in the liver and the cervical veins.

The typical findings on the chest roentgenogram and cardiac fluoroscopy are: 1) a prominent main pulmonary artery; 2) a small aortic knob or absence of the aortic prominence; 3) prominent hilar shadows and pulsation of the hilar vessels with increased pulmonary vascularity; 4) there is frequently a prominent right atrial shadow in the posterior anterior and oblique views; and 5) right ventricular enlargement. The left ventricle may also be enlarged in some cases.

Angiocardiography is sometimes used to delineate the type of heart disease present and with special techniques the actual passage of the contrast media through the septal defect may be demonstrated. By more conventional

angiocardiography, the presence of intra-atrial septal defects may be indicated by early opacification of the left atrium, by maintained opacification of the right heart or occasionally by actual visualization of the return of dye to the right heart.

The ECG usually shows right axis deviation. Incomplete or occasionally complete right bundle branch block is an almost constant finding. Auricular enlargement may be shown by a very large T wave and a widening and notching of the QRS complex. Friedberg states that incomplete right bundle branch block in a case of congenital heart disease should suggest the presence of an interatrial septal defect.

Cardiac catheterization is probably the most important ancillary procedure in the diagnosis of atrial septal defects. The diagnosis can be made with relative certainty and valuable prognostic information obtained regarding accurate measures of the flow through the septal aperture. When the catheter can be passed through the auricular septal defect, this offers positive proof of its existence. Samples of blood from the right auricle, right ventricle, and pulmonary artery generally show an oxyhemoglobin saturation of 80 to 90 per cent, which is greatly in excess of that found in the vena cava.

The selection of patients for surgical correction of the septal defects is dependent upon the degree of disability experienced by the patient. If there is significant disability due to exertional dyspnea or recurring episodes of heart failure, operation should be advised. By radiographic and electrocardiographic studies, there should be evidence of right ventricular hypertrophy in these candidates for operation. Catheterization studies should show pulmonary blood flows at least twice systemic blood flow. Some feel that with larger pulmonary blood flow, the operation is probably indicated in asymptomatic patients. The combination of pulmonary hypertension and a large left to right interatrial shunt are regarded as the main indications for operation.

The technique of atrio-septo-pexy has been described by Bailey and his co-workers as a satisfactory method of closure. After digital exploration of the septal defect by way of the right atrial appendage, a progressive approximation of invaginated right atrial wall to the periphery of the septal defect is carried out by sutures placed through the wall of the enlarged auricle. This technique limits the repair to defects with complete rims in the middle of the septum. The repair of a large defect without a septal rim and in continuity with the bicuspid and tricuspid valves would result in obstruction of the vena cava or tricuspid valve. It would not be feasible to use this method in young children with appendages not large enough to admit the exploring finger.[6] In 50 cases with atrial septal defects in whom closure of the defects were performed by atriopexy, there were 5 deaths in 37 patients with persistent ostium secundum and 8 deaths in 13 patients with persistent ostium primum. Clinical improvement was noted in the majority of the 29 patients followed up to 30 months after surgery. Post-operative catheterization in 24 patients indicated obliteration of the intercardiac shunts in 22.[7]

Another closed tactile method for closure of interauricular septal defects has been described by Björk and Crafford.[8] This consists of passing a needle and suture through the right atrial wall, subendocardially in the rim of the defect, through the upper portion of the interventricular septum, and out through the posterior atrial wall. This suture is placed with the aid of the finger in the right atrial appendage and is made possible by a dissection in the groove between the right and left atrial walls. The suture is tied over a fibrin-foam sponge between the superior vena cava and the right pulmonary veins, thus closing the defect. This group has performed surgical closure of the atrial septal defects in 19 cases with 2 deaths.[9]

A third technique permitting closure of an interauricular septal defect has been described by Gross who used the "well" technique. Following an exploration of the right auricle through the appendage, a funnel shaped rubber well was sewn into place into the auricle and when the atrial clamp was removed, blood was allowed to flow up into the well. The low pressure present in the right auricle permitted digital exploration of the lumen of the auricle and working space to re-

pair the septal defect. The closure of the interauricular septal defect was accomplished by use of various plastic prostheses or polyvinyl sponge. According to some writers Gross has now discontinued use of this method in favor of atrioseptopexy. This type of operation is contraindicated in patients with pulmonary hypertension and an elevated right atrial pressure.[10,11]

Swan has demonstrated more recently the feasibility of open cardiac operation and its application to repair of interauricular septal defects under direct vision. A relatively dry field is obtained by complete cardiac inflow occlusion with the patient in hypothermia with a rectal temperature of approximately 28° to 32° C. At this body temperature, a period up to 8 minutes is available for inflow cardiac occlusion and repair of the atrial septal defect by direct vision. This procedure has the advantage of direct observation of the defect and more accurate repair but is limited by the side effects of hypothermia. With the open-heart method one should be more certain of an accurate and complete repair and of finding and repairing associated anomalous veins and multiple defects. Swan reports a series of 42 patients operated upon for auricular septal defects with 7 deaths. Complete closure was felt to be obtained in 22 patients. Of 36 patients operated upon for a persistent ostium secundum, only 4 died.[12]

Direct vision repair of interauricular septal defects may also be performed using an extracorporeal pump oxygenator circuit as described by Lillehei and his group. The pump oxygenator is still in the process of development and further clinical trials but offers promise of replacing hypothermia as a means for direct repair of the atrial septal defects.

After reviewing the previously described methods for closure of interauricular septal defects, it was decided to investigate further the possibilities of direct vision repair under hypothermia. Large atrial septal defects were made in dogs under direct vision and closed either by a second cardiac inflow occlusion at the same operation or at an interval of one to two weeks. The dogs were placed in an ice water bath and the temperature lowered to approximately 31° C. The temperature usually continued to fall rapidly to the level of 26° to 28° C. after removal from the ice water bath and was stabilized throughout most of the operative procedure. The pulse rate of 140 to 180 usually fell to a range of 50 to 75 per minute with the lowered temperature. A right lateral thoracotomy incision was used. The inferior and superior vena cavae were dissected free and encircled with umbilical tape. A Harken auricular clamp was placed over the right atrium and stay sutures of 3-0 silk were placed at each end of the proposed incision. An incision was made in the atrium. The intracardiac procedure was then performed after cardiac inflow occlusion. A defect one-half to one centimeter in diameter was made in the atrial wall. The heart was then filled with saline by flooding the entire atrium and the clamp reapplied to the atrial wall. In many cases the heart was allowed to return to its normal beat by removal of the occluding clamps and after an interval of ten minutes, the procedure was repeated for closure of the interauricular defect. At the time of closure various methods of preventing the trapping of air in the left atrium were used. The insertion of a polyethylene catheter seemed to be effective as was the flooding of the atrial chamber just before the sutures, which were previously placed, were tied. After closure of the incision, the animals were then placed in a warm bath of approximately 42° C. and warmed to the preoperative temperature as measured by a rectal thermocouple. The surviving animals were sacrificed at a later date for observation of the healing stage of the septal defect repair.

As a preliminary procedure in order to perfect the surgical technique, 16 animals were operated on with inflow occlusion and under direct vision without hypothermia. Creation and closure of an auricular septal defect was performed. Of the 16 operated on under normothermic conditions, 7 died at operation and 2 died immediately postoperatively. This high mortality was expected although the duration of the inflow occlusion was purposely made very short.

A total of 30 operative procedures were performed on hypothermic animals with the previously mentioned operative technique. Of

these 30 cases there were 9 operative deaths. Ten additional animals died in the immediate post-operative period.

There were four cases of ventricular fibrillation in the hypothermic animals as opposed to only one case in the normothermic dogs. There was no significant difference in the occurrence of air embolus in the two series of studies. The high incidence of post-operative death in both series of cases but particularly in the hypothermic group, was unexplained.

The period of inflow occlusion in most cases ranged from 3 to 6 minutes. The occurrence of air emboli in the coronary vessels frequently preceded a fatal ventricular fibrillation but in 2 animals air embolus was noted and the air evacuated without an occurrence of a fatal fibrillation. None of the animals having ventricular fibrillation during hypothermia survived. When the surviving animals were sacrificed, the septal defect was closed and healed in every case.

RESULTS OF CREATION AND CLOSURE OF ATRIAL SEPTAL DEFECTS IN FORTY-SIX DOGS

NORMOTHERMIA

Total operations	16
Died at operation	7*
Died immediately post-operatively	2
Causes of Death	
Ventricular fibrillation	1
Empyema	0
Air embolus	3
Acute dilatation	1
Technical errors	1
Unknown*	5

HYPOTHERMIA

Total Operations	30
Died at operation	9*
Died immediately post-operatively	10
Causes of Death	
Ventricular fibrillation	4
Empyema	1
Air embolus	2
Acute dilatation	0
Technical errors	7
Unknown*	6

* Since the head was not opened at autopsy, a large number of the unknowns may represent cerebral air embolus.
* Some animals presented more than one cause of death. Autopsies did not include examination of the brain.

Discussion: The comparison of the normothermic and hypothermic procedures using identical operative technique reveals that less than one third of the animals died during operation under hypothermia and almost one half under normothermia. This would appear to indicate that the hypothermia is effective in prolonging the period of cardiac occlusion which permits survival. The increased incidence of ventricular fibrillation in the hypothermic animal is consistent with all previous experimental and clinical experience. Ventricular fibrillation is probably the most common and the most fatal complication of hypothermic anesthesia and has been reported to occur more frequently in diseased hearts than in the normal. Ventricular fibrillation is seen as a result of excessive handling or trauma to the ventricle during hypothermia and also is reported frequently to occur following coronary air embolism.

Swan reports that recent experiences indicate a lower incidence of fibrillation with temperatures at a higher level (30 - 32° C.) One group of workers has demonstrated very effectively that injection of procaine into the sino-auricular node prior to the time of inflow occlusion markedly decreases the incidence of ventricular fibrillation and this technique has been used in clinical applications of this study.[14] The tendency towards fibrillation in patients with respiratory acidosis has also been demonstrated and for this reason all of the animals used in the study were subjected to artificial hyperventilation throughout the course of hypothermia. Since this group of animals has been studied, the use of neostigmine by coronary perfusion has been shown to be highly protective against ventricular fibrillation in the cold canine heart.[12] Therefore, in patients subjected to hypothermic anesthesia for interauricular septal defects as well as for repair of other cardiac anomalies, neostigmine has been injected into the proximal occluded aorta to permit coronary perfusion.

The presence of air emboli in the coronary arteries in both groups of animals studied stresses for us the importance of measures to prevent this occurrence and a subsequent ventricular fibrillation. Cardiac outflow occlusion clamp has helped reduce the incidence of air embolus in the cases studied. In clinical cases a bilateral anterior thoracotomy incision has been used instead of the experimental

right thoracotomy incision in an effort to place the cardiac opening in the uppermost portion of the heart. Lateral or vertical tilting of the operative table is used to assure achievement of this objective. The flooding of the heart chambers with saline solution has helped to prevent the occurrence of air embolus in the coronaries. Massage of the air bubbles in the coronary vessels has reported to have been effective in preventing a fatal ventricular fibrillation.

The results of this series of experiments have made possible the use of hypothermia with cardiac inflow occlusion in a significant group of patients at this institution. This experimental technique in a modified form has been used clinically with satisfactory results. Although the use of hypothermia carries a definite risk, it is believed that at the present time it is a valuable adjunct in the repair of interauricular septal defects and in selected extracardiac lesions.

Summary

The anatomical characteristics of interauricular septal defects are described.

The symptoms and signs of the lesion are reviewed, along with the findings on accessory examinations consisting of plain roentgenography, electro-cardiography, angio-cardiography and cardiac catheterization.

The features of the closed methods of repair are described.

Likewise the features of the open methods of repair with and without hypothermia and cardiopulmonary bypass are reviewed.

The technique and results of the applications of the hypothermic technique through the creation and closure of interauricular septal defects in dogs are described.

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THE PHYSICIAN IN CHILD ADOPTION

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The role of the physician in child adoption is important and indispensable. The physician's part cannot be delegated or done by others. On his skill and thoroughness may rest the fate or happiness or tragedy of another. The physician's examination cannot be undertaken lightly or perfunctorily. Successful child adoption, to a large measure, depends on a sound baby and healthy, well-adjusted parents, both natural and adoptive. The general practitioner, pediatrician and obstetrician are, naturally, most frequently involved in these examinations, but all branches of medicine may be called for advice and help. The medical aspect, then, reflects upon the entire profession.

Inescapably, the social, legal and medical aspects of child adoption overlap. Each participant in the adoption picture should confine his efforts, as much as possible, to his particular field and each make available to the others such information as may help. All of the findings are necessary for the complete adoption picture.

Even before the machinery of adoption is started, the physician may be of inestimable help in counseling with parents considering adoption, or with a mother about offering her child for adoption.

The wise and thoughtful physician may find the reasons for adoption to be a natural yearning and love for a child with all circumstances favorable so that he can encourage the undertaking, or, he may discover the reasons for adoption to be invalid—as an interest for a bored, discontented housewife, a security for an older childless couple desiring a child to care for them in old age, companionship for a neurotic wife afraid to be alone or a mistaken idea on the part of the wife that her drunken husband will be reformed. However, the physician may know the home life to be one of discord and immorality, or that there is a repeated criminal record. Thus the idea of adoption can be immediately discouraged.

The mother of a child born out of wedlock, who considers offering her baby for adoption, may counsel with the experienced physician and trained social worker.

When the decision is finally made to offer the baby for adoption, there is usually emotional upset or shock from the reality and finality of the separation. Psychological adjustment should, therefore, be started as soon as possible.

Again, while the parents are waiting indefinitely for a child, this period offers the occasion for training in infant or child care. Confidence and reassurance can be developed so the actual receiving and care of the child will be accomplished without unnecessary anxiety and uncertainty. The adoptive parents held in lengthy suspense month after month, not knowing when the adoption will go through, may develop nervous disorders and emotional suffering. These delays are, in part, due to current adoption practices, an overload of case workers, and a greater demand than the supply of babies.

Every child and parent concerned with adoption should have a thorough medical examination and opinion concerning physical and mental fitness.

A qualified physician should examine the child carefully for physical defects and for evidences of unfavorable traits that may subsequently develop. An examination at birth may rule out gross evidences of congenital defects, but may not immediately reveal blindness, deafness, affections of the brain, nerves, and muscles and some other conditions. A subsequent examination, perhaps at three months, may reveal defects not ascertainable at the examination immediately after birth.

It is, therefore, obvious that adoptions consummated shortly after birth carry more unpredictable physical risk than at a later time. It is further obvious that no physical examination can necessarily detect completely or prognosticate the baby's physical or mental

future. Licensed adoption agencies recognize these risks and advise withholding final adoption practices up to one year, although the baby may be placed with the adoptive parents during this time. It is important that the newborn baby be placed as soon as possible in the home of the adoptive parents rather than in a boarding home. The love and the care of the foster-mother cannot be duplicated by an institution, and the health and security of the child will be greatly helped.

It is tragic for adoptive parents to obtain a child with serious defects which could have been demonstrated before adoption, and which now make the child a chronic invalid without hope of normal existence.

The examination of the natural parents may reveal conditions that do not immediately show in the infant, but which could develop later, as examples, tuberculosis, manifestations of syphilis or epilepsy, nervous or emotional instability or mental abnormalities, diabetes, hemophilia, and a long list of other conditions which alert the physician. This information should not only be available to the adoption agency or party responsible for carrying out the adoption but also to the physician examining the child.

The adoptive parents must be physically healthy, nervously and emotionally sound, and have no contagious or infectious conditions that would be hazardous to the child.

Can you imagine how unfair it would be to the child for the adoptive mother to have advanced cancer, a blood dyscrasia, hemiplegia, or other incurable condition that would shortly end in her death?

During the examination adverse social conditions might become apparent, as alcoholism of either parent, a disorganized home, a quarrelsome nature or undesirable traits of character. These findings should be referred for complete social evaluation. And conversely, a social worker may gain medical information of vital importance that should be made available to the physician.

I hope it becomes apparent how important thorough medical examination of the three parties, i.e., child, natural, and adoptive parents can be or how long it might take to do the examinations, and that more than one physician is very likely to be involved.

The investigation is a team work and has to be coordinated for the complete picture and proper recommendations for suitability or unsuitability.

The physician's role in adoptions may, at times, embrace sociological or legal aspects.

Not infrequently physicians are called upon for aid in securing a baby. The family physician, the obstetrician, or pediatrician may be requested by interested parents to let them know when he learns of a "fine baby" for adoption.

Frequently, the request comes from a close friend or patient, or, on occasion, from a lawyer. The physician, in such circumstances, may learn of a baby offered for adoption and, by so helping, may receive everlasting gratitude from the parents, while, from other quarters, he may be criticized as a so-called "go between".

This adoption participation is not unusual and is rather widely practiced. The physician has, more or less, inherited or followed in the established footsteps of his predecessors in adoption procedures.

No doubt there are abuses of the practice and circumstances may rightly or wrongly put the physician in an unfavorable light.

I have talked with several physicians who have been drawn into adoption procedures because of their contacts, and I am convinced that the physicians are acting with the best motives.

Most physicians do not know the laws covering adoptions, and follow the conventional or prevailing practices of the hospital and the community, never realizing how much they are taking upon themselves.

Many of the physicians who are better informed about the intent and scope of the law take part in the adoption role because they sincerely believe the law and the agencies do not operate for smooth, efficient adoptions and, hence, by conventional practice and an effort to do humanitarian service, take part in the non-professional aspects of adoption procedures, the physician having assumed that the necessary legal steps and plans have been made, when actually, the arrangements may be of an impulsive, expedient type so that the

physician unwittingly is lending his help and sanction to a procedure in which the child may be unprotected.

In most instances, the physician knows either the natural or the adoptive mother or both, and may have delivered the baby or examined it and, hence, feels he is in a position to know and act for the best intent of all participating parties. Under these circumstances the adoption is most often happily carried out.

Unfortunately, the participating physician may not know either parent as well as he thinks, or the home environment may be different from his belief, so that his well intended word or opinion may be amiss.

If such circumstances as above had had thorough social investigation, the faults would be known and a misconceived or recommended adoption would not have taken place.

It is, therefore, apparent that to save some children from being legally adopted by unsuitable parents or into impossible homes, all adoptions should have prompt and proper social investigation before being approved.

The procedure should apply to all alike and every medical and social safeguard thrown around the child, because it is he who usually suffers. You may ask why this is not done. Your answer is as good or as unsatisfactory as mine. I believe the remedy will be by specifically well spelled out adoption laws and practices.

We all know the roadblocks to revised laws, especially adoption laws, because so many adoptions are successful that the others are overlooked.

I believe the first step is to supply all physicians with a full picture of the current variable loose adoption practices and the injustices that may fall upon the innocent child.

I feel confident that an educational or fact-supplying program will immediately startle the medical profession as a whole, and their cooperation and sentiment will be good. Even now, medical societies, both state and national, are showing definite interest in obtaining better adoption laws.

In my state, the Medical Association, at its last meeting, passed a resolution endorsing the state Adoptions Committee's efforts in obtaining better adoption laws and practices, and the Committee on Maternal and Child Welfare are further making an effort to protect the adopted child.

Physicians are daily devoting their lives to relieve and prevent suffering and they will not condone practices that can lead to misery and suffering of a child or parent. It is hoped that the clarified adoption picture to the physician will next spread to the parents and friends who will demand legislative revision of the adoption practices.

The physician would welcome and follow a revised act that spelled out his role and relieved him of pressure forces in child adoption.

The average physician is not legal-minded or suspicious of the backdoor adoption schemes that the mother of the newborn baby is about to impose upon him.

The physician, by nature, wants to help—not frustrate. He is apt to accept an unusual, early separation of the baby from its mother as an odd attitude of the mother rather than an irregular adoption procedure in the making.

The birth certificates, again, may be carelessly filled in or misinformation supplied by the mother or other person filling in the data for the physician's signature. An assumed name of parents, in years to come, in addition to other injustices, may deprive the child of his rightful inheritance.

The hospital may be careless in the safeguards to protect babies from illegal adoption practices. Those persons who foster racket adoptions know which hospitals are easy and careless. The hospital must assume its responsibility and alert the physician and authorities when irregular adoptions appear in the making.

In conclusion, I wish to stress the following points:

1. Careful physical and background examination of baby, natural and adoptive parents.
2. That adoptions be carried out as thoroughly and quickly as possible for the good of the child and parents.
3. Revision in the adoption codes that spell out precise procedure and safeguards so that the role of the physician, hospital, social worker, and attorney will be definite and all aimed for the protection of the child.

4. An educational and fact-revealing campaign for the physician with anticipated grassroot extension to the parents and friends.
5. Cooperation and sharing of all information and findings that better adoption practices may result.
6. Regardless of laws, social studies and medical examinations, improvements in adoption practices will come about only when all concerned put the plight or best interest of the child first.

September 26, 1957
Read before the Southeastern Regional Conference, American Public Welfare Association.

THE PREFERRED SITE OF INTRAMUSCULAR INJECTION

REPORT OF A CASE OF PERIPHERAL NERVE PARALYSIS FOLLOWING INTRAMUSCULAR THERAPY.

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Introduction

The intramuscular injection of drugs and biologicals is a permanent part of medical therapy. In recent years, and especially with the advent of antibiotics, intramuscular therapy has increased considerably. It is not unusual for a post-operative patient to receive six to twelve injections of varied medications during a hospital day. Reports of complications following intramuscular therapy are somewhat less than common, particularly if one considers the large number of injections. However, when these complications occur, they are extremely serious and may cause total disability. Almost all intramuscular injections are given in the upper arm or upper outer quadrant of the buttocks. This duty is often entrusted to the inexperienced hand, and too often the injections are given with complete disregard for the underlying anatomic structures.

It is our desire to stress the advantage of the lateral thigh as the preferred site of intramuscular therapy and to condemn the buttocks and upper arms as sites of injection. We also hope to impress upon the medical and nursing professions the need for revision of a practice which is thought to endanger the patient's well-being and which may well invite undesirable legal action against the physician in charge. A case of sciatic nerve paralysis secondary to an injection of tetracycline hydrochloride is presented.

From the Department of Surgery, Medical College of South Carolina.

Case Report

A 53 year old colored female was admitted to Roper Hospital with lower and mid-abdominal cramps, nausea, and vomiting for twenty-four hours. The physical signs of intestinal obstruction with characteristic radiographic changes were present. A subtotal gastrectomy had been performed in 1943 for intractable duodenal ulcer. A vagotomy was done in 1945 for persistent pain. In 1954, she was admitted for acute intestinal obstruction secondary to a phytobezoar of the ileum. This was removed by ileotomy.

The history of multiple abdominal operations suggested adhesive obstruction. At operation a closed loop obstruction of the jejunum secondary to adhesions was found. The involved jejunum measured three feet and was gangrenous. This was resected and an end-to-end jejuno-jejunostomy was done. The post-operative course was not remarkable until the fifth post-operative day, when immediately following an intramuscular injection of tetracycline hydrochloride (100 mg.) into the left buttock, the patient complained of tingling and pain in the left foot. Shortly thereafter she noted numbness and weakness of the left foot and leg. Upon examination at this time there was no evidence of thrombophlebitis. The left foot and leg were warmer than the right but there was no swelling or tenderness. There was loss of pain and touch sensation over the lateral aspect of the lower part of the leg, and the dorsum of the foot. There was paralysis of the plantar flexors of the foot and weakness of the dorsiflexors of the toes and ankle. Weakness of the hamstrings was also present. Treatment consisted of physiotherapy, massage, and passive motion. A posterior plaster splint was employed to minimize foot drop. The patient was discharged

eleven days after the onset of her difficulty.

She was re-admitted to the hospital three days after discharge, complaining of pain and swelling of the left foot. The foot was tender to touch and there was a large bulla present over the dorsal and plantar surface. There was anesthesia over the lateral surface of the foot to the level of the lateral malleolus, with hyperesthesia over the medial portion of the foot. There was a progressive slough of skin over the dorsum of the foot. No return of sensory or motor function was evident. Treatment was limited to physiotherapy and local care of the wound. When seen in the out-patient department one month later, the rather marked foot drop remained with no change in the motor or sensory findings except for return of some touch sensation over the posterior aspect of the upper part of the leg.

Discussion

Turner[15] in a letter to the editor of *Lancet* in 1920, was the first to decry the use of the upper arm and buttocks for the site of intramuscular therapy, and recommended a change to the lateral thigh. His advice is apropos now as then.

> "The gluteal region appears to enjoy a traditional reputation for this purpose, but surely with less justification than as the time honored seat of castigation! The area is vascular, is abundantly bestowed with important nerves, and is subjected to the constant physiological traumatism involved in sitting and lying, to say nothing of the activity associated with walking.
>
> I would like to suggest that the region of the outer side of the thigh, where lies the great vastus externus muscle, is as nearly as possible the ideal place for all types of intramuscular injections. Here we have a large mass of muscle protected by the strong fascia lata and embedded in so much cellular tissue as to allow ample room for distention. The area does not contain any important nerves or large blood vessels, and it can be readily freed from physiological traumatism as any other part."

In 1944, Turner[16] reported several cases of secondary hemorrhage from the superior gluteal artery complicating an abscess secondary to the injection of quinine into the buttocks. Ligation of the main arterial trunk was required for hemostasis. He had observed many soldiers with severe neuritis and paralysis of the sciatic nerve following quinine injection. Intramuscular sulphapyridine was noted by Frankland[6] in 1941 to cause peripheral nerve damage. Sulphapyridine was

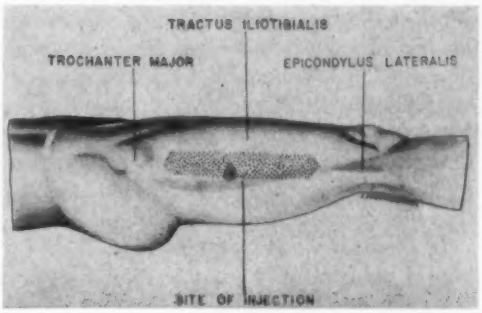

Diagram 1

Lateral view of the thigh in the recumbent position. The stippled area represents the area in which injection should be given.

also reported by Elkington[4] to have caused sciatic and radial nerve damage in three cases and he advised that injections be given in the vastus externus. Similarly, in 1948, Krishna[10] advised a change from the buttocks to the lateral thigh as the preferred site of intramuscular injection. He related that injections given subcutaneously were much more painful and less readily absorbed than those given in the muscle belly itself. He stated that the gluteus muscle often lies beneath a thick subcutaneous layer, that frequently injections did not reach the muscle, and therefore were painful. On the contrary, injections in the lateral thigh were readily placed in the muscle belly. It was noted that the upper outer quadrant of the buttock was richly supplied with cutaneous nerves and was a very painful site for injection. He felt that the gluteal region "should be declared the 'prohibited area' and 'out of bounds' to the intramuscular needle."

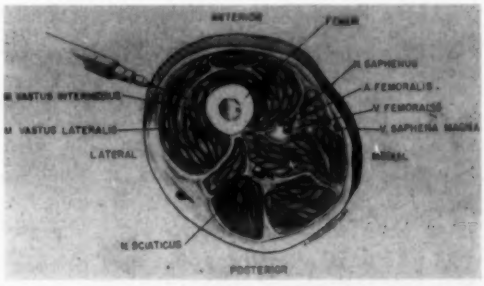

Diagram 2

Cross-section through the mid-thigh showing the large muscle mass available and lack of vital structures in the lateral portion.

Most of the case reports of complications following intramuscular therapy have been those of penicillin injections, but the sulfonamides, streptomycin[14,11,3] and di-hydrostreptomycin have also reportedly caused peripheral nerve damage. Tarlov *et al* even found slight neurologic changes after experimental circumneural injection of saline or novocaine.

In 1946 Kolb and Gray[9] first reported peripheral neuritis as a complication following penicillin injection. At that time other reports indicated a toxic effect of penicillin on the central nervous system. Johnson and Walker[8] reported convulsions in a patient receiving intraventricular penicillin. A convulsive factor in penicillin was also described by Johnson and Kollros.[17,18] Borkowski[2] in 1947 supported the work of Walker and his group and was able to produce convulsions and EEG changes in cats by applying penicillin-soaked pledgets to the cerebral cortex. Subsequently many reports of complications following intrathecal penicillin appeared.[13,5,12]

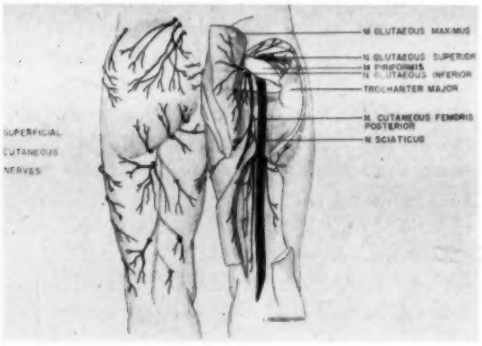

Diagram 3

The left buttock and thigh showing the superficial cutaneous nerves. Right buttock and thigh showing the gluteus maximus retracted medially and exposing the abundant nerves of this area.

Kolb and Gray in their report described seven cases in which patients receiving intramuscular injections of penicillin developed a localized peripheral neuritis. The neuritis in these cases was characterized by an onset of 10 to 21 days after the initial injection. The motor disability was greater than the sensory disability in each case. Recovery of function was rapid in all cases. They suggested that the cause was a delayed systemic toxic reaction to penicillin, and felt that direct injury to the nerve was not likely. Tarlov *et al* in later work produced experimentally similar delayed peripheral neuritis, which they felt was due to progressive inflammatory and fibrotic changes of a local nature.

In 1949 Broadbent *et al* reported four cases of peripheral nerve injuries following penicillin injection. These cases, unlike those of Kolb and Gray, developed symptoms immediately following the administration of penicillin. In all cases there was noted an immediate onset of pain and tingling in the distribution of the nerve, and complete loss of motor function of the nerve. The sensory disability improved rapidly in most cases and was completely cleared anywhere from three hours to ten months later. The motor disability resolved much more slowly, and in one case there was no improvement in ten months. Two cases of radial palsy were explored and external neurolysis gave no improvement.

Holbrook and Pilcher,[7] in 1950, reported a case of sudden pain and numbness in the left arm with wrist drop following an intramuscular injection of calcium penicillin (300,000 units) in peanut oil and beeswax. A month later there was noted to be complete radial paralysis. The radial nerve was explored and was found to be completely necrotic for approximately 10 cm. There was necrosis of the adjacent muscle also. This stimulated their study in which the sciatic nerve was exposed in dogs and intraneural and intramuscular injections, in proximity to nerve trunks, of penicillin and its combinations were given. They found that severe sciatic nerve injury resulted from injection of sodium penicillin and calcium penicillin into the nerve. Woodhall *et al*[19] injected various salts of penicillin and streptomycin into the sciatic nerve of cats. They found an inherent toxic effect upon peripheral nerve axons that may result in axonal degeneration when antibiotics are injected within the nerve substance in high concentration. A more marked effect was produced by dihydrostreptomycin sulfate. Tarlov *et al* cite a case of almost complete sciatic paralysis following an intragluteal injection of penicillin. Two years later a neurologic deficit was still noticeable. This prompted a study in which the

sciatic nerve of rabbits was used. Various preparations, including streptomycin, dihydrostreptomycin, and aqueous procaine penicillin G, were injected around the nerve and into the epineural sheath or directly into the parenchyma of the nerve. The neuritis which followed was attributed to direct injection of material into the parenchyma of the nerve. Injection around the nerve or into the epineural sheath did not produce the intense and persistent neuritis. The nerve sheaths appeared to resist strongly the inflammatory reaction. In some cases, they found a late interval of 8 to 17 days before severe impairment occurred. This was similar to Kolb's cases as previously cited. They felt that operative therapy would probably be of no avail because there was an intraneural lesion and not extraneural compression. Matson on the other hand recommended early neurolysis in the treatment of peripheral nerve injuries due to faulty injection. He cited two patients with sciatic nerve paralysis. One had neurolysis after twelve months of conservative therapy without return of function. Two months later the first return of function was noted. The second patient who had received an injection of streptomycin had neurolysis within three weeks of onset of symptoms and improved within the first few weeks following operation and progressively for the next thirteen months with complete return of function. He recommended neurolysis if there was no progressive improvement within two to three weeks.

Augustine *et al*[1] in 1952 repeated the plea for the use of the lateral aspect of the thigh as the site for intramuscular injections and cited three cases of sciatic palsy following gluteal injections. They recommended that the injections be made along a line extending from the greater trochanter to the lateral femoral condyle below. They cited the following advantages. The injection can be given with the patient in either the sitting or the recumbent position; whereas with gluteal injections the patient must be turned. If the femur is struck, pain or injury is negligible. Incision and drainage in cases of infections is easily done because of the lack of vital structures.

Conclusion

The buttocks and upper arms have continued to be the usual sites of intramuscular therapy, without regard to the highly unfavorable consequences of their use. Peripheral nerve injuries when they occur after intramuscular injections may be irreversible and totally disabling. Peripheral neuropathy when it occurs is due not only to the toxic effect of the drug on the nerve tissue, but to resulting inflammatory changes. Paralysis may be immediate or delayed, and may cause irreversible nerve damage. External neurolysis is recommended if progressive improvement does not occur within approximately three weeks.

The lateral thigh is easily accessible in either the erect or recumbent position. Patients do not have to be turned. There are no vital structures in this area. There is ample muscle mass to accommodate repeated injections of large amounts. The muscle belly is easily reached beneath the tensor fasciae latae. Abscesses are easily drained without danger of damage to vital structures. Pain fibers are not as abundant. The area is not subjected to the constant trauma of sitting and lying. Inexperienced personnel can use this area without danger. (See diagrams 1-3.)

Despite repeated pleas for abandonment of the upper arm and buttocks and the use of the lateral aspect of the thigh as the preferred site of intramuscular injection, there has been no evidence of acceptance. It is hoped that the members of the nursing and medical profession will realize the potentially dire medical and legal consequences of the continued use of these areas, and will administer intramuscular injections only into the lateral aspect of the thigh.

Summary

The gluteal area and upper arms are unsatisfactory as sites of intramuscular therapy because of the possibility of secondary peripheral neuropathy or neuritis and its consequences. The site of injection should be changed to a less vulnerable area, such as the lateral thigh. A case report is included.

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SOUTH CAROLINA'S MATERNAL MORTALITY FOR 1955

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AND THE
MATERNAL AND CHILD HEALTH DIVISION, STATE BOARD OF HEALTH*

In a publication this year by the Committee on Maternal and Child Care of The American Medical Association, it was noted that there had been a 77 per cent reduction in the maternal mortality rate in the United States from 1945 to 1955. Dramatic improvement in the maternal mortality rate in several states and communities where continuous programs for thorough study of maternal deaths were in progress were also found. On the other side of the ledger, however, the studies revealed that 50 to 90 per cent of the maternal deaths had preventable factors. This, of course, is the whole purpose of a study of this type; that is, to uncover these factors and then take the necessary steps to avoid recurrence.

This is accomplished through the Maternal Health Committee. The members of this committee are appointed by the South Carolina Medical Association from physicians in the specialty of obstetrics and members of the Academy of General Practice. The Committee Chairman prorates the death records among the various members for detailed study. Each case is then reviewed by the entire committee to determine actual cause of death, classification, preventability, etc. and the physician signing the death certificate is informed of the final decision. By this and other time consuming methods the way to continued reduction in maternal mortality is opened.

At a recent meeting we were told that South Carolina was "sick". By this it was meant that the maternal death statistics for South Carolina were somewhat high as compared with those of some of our neighboring states and with

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the national averages. We do not have our tabulations for 1956 but we do have them for 1955 and after complete evaluation we find that perhaps we are not as bad off as one may think on superficial perusal of the final figures.

Table I

	Deliveries	Deaths	Incidence
White	38,875	5	1 in 6,975
Colored	28,166	61	1 in 454
Total	63,041	66	1 in 941
National Av.			1 in 2,631

Table I divides the total deliveries in South Carolina for 1955 between the white and colored races. In the white race there were 34,875 deliveries and only 5 deaths giving an incidence of one death for every 6,975 deliveries. This compares very favorably with the national incidence of one per 2,631 deliveries. The colored maternal death rate of one in 454 deliveries and the combined rate of one in 941 compares very unfavorably with the national average. The most striking fact which these figures show us is the marked discrepancy in the maternal deaths of the white and colored races. There is no need to dwell on the reasons for this discrepancy, but it does reflect very decidedly the value of good prepartal and obstetrical care.

Of the total 66 cases, the Maternal Health Committee was able to obtain the necessary details for complete evaluation on 56. Included are all those cases which are covered by the definition as given by the American Medical Association; that is, any woman dying of any cause whatsoever while pregnant or within 90 days of the termination of the pregnancy, irrespective of the duration of the pregnancy at the time of the termination or the method by which it was terminated.

Of the 56 cases, 41 were legitimate pregnancies and 15 illegitimate. The age varied from 17 to 44 years with an average of 30 years. The parity varied from 1 to 14 with an average parity of 4. There were 5 deaths occurring in the primagravida group. Fourteen of the deaths occurred in the home and 42 in the hospital. A number of the hospital deaths were terminal admissions, but none the less, were included as hospital deaths.

Forty-one cases were attended by a physician at the time of delivery and in 5 instances the physician was an obstetrician. There were 7 patients attended by a midwife and 2 unattended. At the time of death a physician was present for 52, the physician being an obstetrician in 7. One death was attended by a midwife and 2 were unattended. Fifteen deliveries were of living viable infants.

In judging the adequacy of the prepartal care, 12 were considered to have had adequate care, 28 inadequate and 12 none. The prepartal care was evaluated according to the circumstances of each individual case, and not by a set standard of a certain number of visits, etc. If a person was seen initially late in pregnancy by a private physician or in a clinic and subsequently received excellent care, this, nevertheless was considered as inadequate. Likewise, if a person was seen regularly by a physician or in a clinic but not cared for or managed in the manner considered optimum by the Committee, this also was judged as inadequate. It goes without saying that the judges were not present when the cases were under treatment and had they been, their decisions might have been altered. Allowing for all considerations, this still stands as a very weak point in South Carolina's maternity care and concentrated effort will have to be aimed at reducing this figure. Certainly in a number of instances the fault is with either the patient or the family or both, and not with the facilities available. Only through persistence will we be able to educate and help this kind of patient.

The delivery was a spontaneous vaginal delivery in 33 patients. The others delivered were by version and extraction in one, low forceps in three, assisted breech in two, and four were delivered postmortem. There was only one death following cesarean section and this occurred in a patient who developed lower nephron nephrosis following delivery for abruptio-placentae.

Table II

Hemorrhage—Primary or Contributing Factor	
1. Rupture of uterus	10
(a) Pitocin	5
(b) Version & extraction	1
2. Postpartum atony	12
3. Placenta previa	2
4. Abruptio placentae	5
5. Ectopic pregnancy	2
6. Rupture of liver	1

The maternal deaths in which hemorrhage

played a primary or contributory role are recorded in table II. In 10 cases the hemorrhage was secondary to ruptured uteri. Five of these patients had received pitocin prior to delivery. It was not determined by which route and in what doses the pitocin was used; in other words, pitocin could not be definitely incriminated in any given case, but it does seem more than a coincidence that 50 per cent of the patients with ruptured uteri had received this drug. The most frequent cause of hemorrhage is listed as postpartum atony. In several cases this was the best clinical diagnosis and if a more complete examination or autopsy could have been done, this diagnosis might have proven to be incorrect. Exsanguinating hemorrhage from a ruptured liver occurred as the terminal event in one patient with severe pre-eclampsia.

Table III
Toxemia—Primary or Contributing Factor

1. Eclampsia	14
2. Severe pre-eclampsia	4
3. Hypertensive cardio-vascular disease	1
4. Hypertensive cardio-vascular disease with pre-eclampsia	7

Toxemia continues to play its prominent role as a causative factor in maternal deaths. As previously discussed, prepartal care for the indigent patient will have to be improved if we expect to reduce this figure. In other localities this condition is the cause of maternal deaths much less frequently and even though they may not have the volume or type of indigent patients we have in South Carolina, we must not use this factor as an excuse for our inadequacy.

Certainly everyone realizes the value of consultation, and in 24 cases or 42.8 per cent a second physician was called. In too many instances, particularly in the rural communities, the lack of consultation was due to the lack of availability. We have little to say for or against our autopsy rate of 27.7 per cent for it is approximately what one would expect. Again we must not let the circumstances excuse us.

The primary causes of death are recorded in Table IV. Hemorrhage due to causes previously mentioned accounted for 25 of the 56 cases or 44.6 per cent, and in almost all cases the hemorrhage was considered as preventable. Further discussion of this will come later.

Table IV
Primary Cause of Death

	S. C. No.	S. C. Per-cent	Missouri 1955	N. C. 1954	Charity Hosp. 1946-1955
1. Hemorrhage	25	44.6	53.7	22.9	16.1
2. Toxemia	17	30.4	17.9	27.7	27.6
3. Infection	3	5.3	2.5	4.7	22.3
4. Embolism	9	16.1	2.5	11.4	10.7
5. Lower nephron nephrosis	1	1.8			5.3
6. Pulmonary edema	1	1.8			
7. Anesthesia	0			6.0	1.4
8. Cardiac disease	0			1.3	

Comparing with Charity Hospital's death rate due to hemorrhage, which represents more the ideal situation, we find only a 16.1 per cent incidence. To account for this a number of factors are involved aside from the fact that blood is readily available; namely, physician attendance, recognition of pathological conditions early, condition of patients prior to delivery, etc. This, of course, points to the value of hospital delivery which is already generally appreciated and accepted. South Carolina's tabulations for the other causes of death, for the most part, are in the same range as other localities with the exception of anesthesia. It is interesting to note there were no obstetrical deaths due to anesthesia in 1955. This may be taken either as a tribute to the good obstetrical anesthesia used in South Carolina or it may reflect the fact that we don't use much of it.

Table V
Obstetrical Deaths

1. Preventable	42 (75 per cent)
(a) Management	19
(b) Technique	1
(c) Patient or family	16
(d) Midwife	6
2. Non-preventable	14

Forty-two of the deaths were judged to be preventable or, preferably, to have had avoidable factors. This represents 75 per cent of the total cases and falls in the range as found in the national study of 50 to 90 per cent having avoidable factors. Three assumptions were made in this evaluation; namely, (1) the physician possessed all the knowledge currently available related to the factors involved in the death (2) by experience he had reached a high level of technical ability and (3) he had available to him all the facilities present in a well organized and properly equipped hos-

pital. In a number of our cases these assumptions are not facts, but we are shooting for the absolute minimum of maternal deaths so we must assume that the ideal is possible.

It is planned that these statistics be tabulated each year so that we may be acutely aware of the difficulties and problems which are encountered with the increasing South Carolina population. Through uniform classification of obstetrical deaths, we will be able to define our problems more accurately and by utilizing the proper educational channels, both within the profession and with the public, the avoidable factors in maternal deaths can be eliminated.

MEDICAL COLLEGE CLINICS

THE MEDICAL COLLEGE OF SOUTH CAROLINA

ELECTROCARDIOGRAM OF THE MONTH

MULTIPLE MYOCARDIAL INFARCTION

DALE GROOM, M. D.
Department of Medicine

Case Record—A 55 year old building contractor of robust physique was awakened during the night by a pain in the mid-chest. He described the pain as being of rapidly mounting severity, becoming excruciating, radiating over the entire anterior chest and down both arms, and accompanied by a profuse cold sweat. It was unlike any pain he had experienced before, although he did recall that on several occasions during the previous few months he had noted a mild discomfort in the chest during strenuous physical exertion but this had not prompted him to seek medical attention.

The clinical and laboratory findings on admission to the hospital were indicative of extensive infarction of the myocardium with impending congestive failure. Fever, tachycardia, and a diastolic gallop rhythm audible at the cardiac apex persisted throughout his illness. The patient remained profoundly weak, becoming dyspneic with advancing pulmonary congestion in spite of adequate oxygen, digitalis, diuretic, and anticoagulant therapy. He died suddenly on the seventh hospital day shortly after the exertion of using a bedside commode.

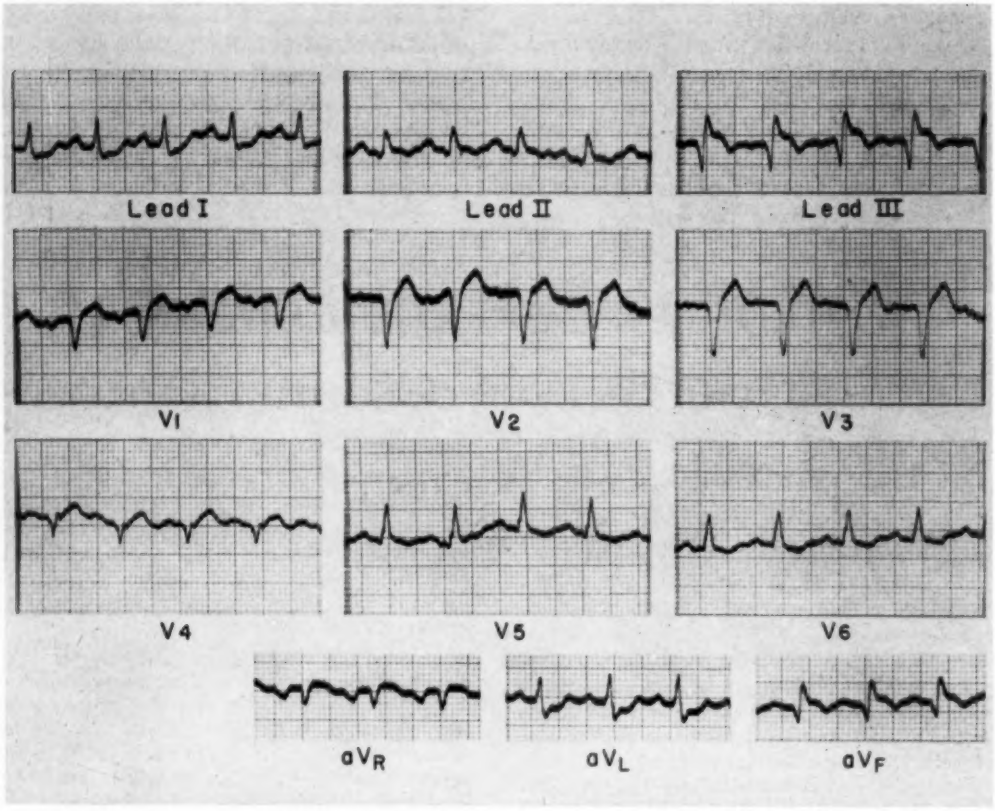
Autopsy examination revealed acute infarction involving both the anterior and posterior walls of the heart and the interventricular septum. Microscopic study of sections taken from these areas indicated the necrosis to be of several day duration.

Electrocardiogram—The tracing illustrated here, made on the fourth hospital day, shows a regular sinus rhythm at the rate of 120. The P-R interval is at the upper limit of normal, measuring 0.20 sec. Amplitude of the QRS deflections is somewhat low in all leads. Deep wide Q waves with elevation of the S-T segments and sharp inversion of T waves are evident in leads III and aVf and, to a lesser extent, in lead II. Reciprocal depression of S-T segments is seen in I and aV1. No R waves are present in the precordial leads from V-1 through V-4.

Discussion—The classical electrocardiographic signs of both anterior and posterior infarction are displayed in this tracing. Leads taken from the extremities reveal involvement of the posterior wall (actually the inferior or diaphragmatic area of the heart) as shown by the prominent Q waves in III and in aVf which faces the diaphragmatic surface. The elevation of S-T segments in these leads with the reciprocal S-T depression in leads from above signifies that the process is acute.

Additional damage is disclosed in the precordial leads which show that a large area of the anterior wall of the heart, which they confront, has lost its electrical activity as evidenced by the absence of R waves as far to the left as V-4. Presumably this means that the anterior wall is also infarcted. The fact that there is no indication of depolarization of muscle tissue in this area—no upward deflections—suggests that the infarction is probably a transmural one involving the entire thickness of the wall and also perhaps including the interventricular septum which immediately underlies this area. Injury to the septum and its conduction pathway had in fact been suspected previously because of an electrocardiogram taken on admission which showed right bundle branch block in addition to multiple infarction. Absent here are the tiny Q waves of septal activation which are normally seen in V-6.

The effects of multiple infarction on the electrocardiogram are of considerably more than academic interest. Depending largely upon the relative size and location of the infarcts, and their time relationship, several results may occur. In the case of an old in-



farction, abnormalities remaining in the complexes may serve to obscure the changes of a subsequent one, especially an extension of the damaged area. An abrupt change in T waves or the appearance of a current of injury may afford the only clue in the tracings of further injury. Or the electrocardiogram may actually become more normal in appearance following a second infarction. This is attributed to a "balancing out" of abnormal forces as in the case of inverted T waves or displaced S-T segments being reversed by the addition of other abnormal forces of opposite polarity and direction. Perhaps this explains in part why an occasional case of massive myocardial infarction shows a nearly normal ECG—this and the fact that there may be insufficient viable muscle remaining to produce the characteristic abnormalities. As a general rule, however, any appreciable destruction of muscle tissue will produce permanent changes in the QRS complexes of leads confronting that area, and these changes do not prevent the appearance of similar QRS abnormalities in other leads resulting from damage to the opposite wall of the heart.

In the case of this patient both anteroseptal and posterior wall infarctions doubtless occurred at about the same time or at least within a matter of a few hours. This is borne out by the lack of a previous history of infarction, by the fact that all four tracings taken during his illness showed evidences of involvement of both walls and the septum, and by the autopsy findings. When both opposite walls of the heart are damaged simultaneously the resulting currents of injury can be expected to in some measure cancel out, even to the point of concealing the acute nature of the process. Here however the S-T displacements produced by the injury to the posterior wall predominate, and if the precordial leads had been omitted there would have been no indication of any other involvement. Even with the V leads it is impossible to determine by this electrocardiogram whether the anterior infarction is an old one or acute, a point which can often be clarified by serial tracings.

The occlusion of more than one coronary vessel at the same time is almost certainly more than coincidence. One of the complications of acute infarction is further infarction of the myocardium. The fall in blood pressure which accompanies thrombosis of a coronary artery is undoubtedly conducive to thrombosis in other arteries, as is, perhaps, some degree of collateral spasm in the coronary arterial tree. Con-

ceivably an alteration in the blood clotting mechanism in response to the physical stress might also be implicated, an aspect which has received relatively little investigation.

LYMPHATIC LEUKEMIA

TABULATIONS ON 2910 CASES TREATED WITH CHEMICALS

JOHN R. SAMPEY, PH. D.
Greenville, South Carolina

Chemotherapy offers increasing hope to the leukemic patient today. The results of the management of all types of leukemia through chemotherapy are appearing so rapidly from medical centers throughout the world that it is impossible to keep abreast of the advances. A check by the author on the hundreds of clinical reports published since 1949 on just lymphatic leukemia shows that 2910 cases have received treatment with chemical agents. Actually the number of patients undergoing chemotherapy is considerably in excess of this total, for 49 of the publications covered in this tabulation gave no figures on the numbers undergoing treatment. A few observations on the 2910 cases, however, will give some appreciation of the scope and progress in this battle of the century.

Radiophosphorus. P^{32} leads in the number of cases treated with 665. More than 90% of these patients had chronic lymphatic leukemia. A remission rate of 35% is not high, but a dozen of the published reports fail to state the number of remissions observed. The types of remissions ranged from mere subjective improvement to complete clinical and hematologic remissions lasting months and even years.

Nitrogen Mustards. N-mustards were effective in 50% of the 505 patients tabulated, but a dozen of the reports again gave no data on the number of improvements noted. All but 13 of the cases were of the chronic type.

Triethylene Melamine. TEM induced remissions in 64% of 469 patients, with 13 reports giving no data on remissions. Only 35 of these cases were of the acute type.

ACTH and Cortisone. These two hormones, with some of the newer derivatives like prednisone and fluorohydrocortisone, accounted for 60% of the remissions recorded in 417 cases, with a dozen publications failing to report any figures on remissions. For the first time in this tabulation, the number of patients with acute leukemia surpass the number with the chronic form of the disease.

Folic Acid Antagonists. Remissions in 366 patients on folic acid antagonists averaged 51%, with 4 reports indicating no numbers on remissions. Only 25 of the patients had chronic lymphatic leukemia.

6-Mercaptopurine. 6-MP had a remission rate of 64%, tying that observed with TEM, with only 2 reports failing to give the number of remissions. All except 6 of the 127 cases had the chronic form.

Urethan. This chemical accounted for 63% of the remissions recorded in 121 cases, with 4 articles failing to indicate the number improved. And only 11 of the cases were acute leukemia.

Miscellaneous Agents. More than a score of chemicals have been administered to 240 acute and chronic lymphatic leukemia patients. In spite of a dozen reports furnishing no data on remissions, a remission rate of 70% has been tabulated. This showing indicates that a number of these chemicals should be given a more extensive trial.

Judging from the above data, one may look with confidence for one of the types of leukemia to yield eventually to a more satisfactory chemical management of these blood diseases.[1]

Furman University

REFERENCE

1. Sampey, J. R., Jour. South Carolina M. A. 53, 202 (1957); Am. J. Surg., In Press.

PRESIDENT'S PAGE

Death on the highways of South Carolina took over 700 lives in 1957. An estimate of injuries and misery as a result of accidents cannot be made, but it must be many times the loss of life.

Competent authorities now know that a large proportion of these accidents have resulted from the physical and mental inadequacy of the drivers. The highway department, as well as the governor, has for several years recommended to the Legislature that some type of medical examination program be authorized by law.

The State Highway Department has now requested the State Medical Association to appoint a committee to assist in setting up minimum mental and physical requirements which a driver should meet. The Highway Department wishes requirements for the initial examination as well as requirements for drivers who already have their licenses.

The Industrial Medical Association feels that the first and most important step must be taken by the practicing physician.

You will be glad to know that our Association is forming a committee to work with the State Highway Department on safety.

Certainly your life and mine should not continue to be endangered by the physically or mentally inadequate driver.

D. Lesesne Smith, M. D.

Editorials

THE HOLE IN THE ANTIBIOTIC BLANKET

Because the prophylaxis of a certain few diseases appears to be achieved by the use of antibiotics, the unwarranted assumption has been made that the generous use of these agents prevents a multitude of other infections. Practitioners in all fields like to "cover" their enterprises with large or prolonged doses of antimicrobials and go rather smugly about their business in the assurance that all will be well.

Prophylactic value has been actually demonstrated to be effective only against a few etiologic agents, such as the beta-hemolytic streptococcus, the meningococcus, the gonococcus, and certain shigella species. The list of failures with other organisms is long.

A study of recent date puts a damper on the still prevalent comfortable thought that most infections can be prevented by premedication. A group of comatose patients were treated with "prophylactic" antibiotics. The mortality rate was not influenced, and more pulmonary and cutaneous infections developed than in the control group. Strains of micrococci isolated from the treated group were more resistant to antibiotics than were those cultured from the controls. Bladder infection from indwelling catheters was not prevented. The conclusion is, that in comatose patients at least, "prophylaxis" is futile.

An editorial comment in the journal in which the report appears is very much to the point:

"It is disturbing as well as discouraging that so many physicians and surgeons continue to employ antibiotics and other antibacterial drugs almost routinely for prophylaxis in any and all situations in spite of the repeated demonstration of their failure to prevent infections. There is an increasing body of evidence that such wanton use of antibiotics may actually encourage implantation of organisms ordinarily uncommon in the respiratory or urinary tract except as transients or as saprophytes. Infections with such organisms are increasing in frequency and severity wherever antimicrobial agents are used in this manner, and these agents are therefore losing much of their value in the treatment of the infectious complications of surgical and medical diseases as they occur in hospitals.

"The alternative policy of careful observation of the patient and vigorous treatment of intercurrent infections as soon as they are recognized, with antibacterial agents specifically directed against their causative agents, appears to be the only reasonable course to pursue and will probably yield the best results in the long run."

New Eng. J. Med. 257: 1001 (Nov. 21, 1957) and 257: 1048 (Nov. 21, 1957)

THE UNIVERSITY HOSPITAL

Despite the considerable unrest in academic medical circles about such issues as reorganization of the curriculum, the place of the professional medical teacher, the length of postgraduate training and its expense, the best choice of teaching methods, etc., to a large degree, clinical medicine remains best taught by some form of bedside precept system. Accordingly, a university hospital always must struggle to improve the care of its patients and to polish the services it renders. This is necessary not only to survive in what is becoming an increasingly competitive field, but also because the very highest grade of patient care and the best possible medical organization must always be sought by such a hospital if it is to discharge its duty to its students and house staff properly. The better the service, the better the training. This, of course, is another example of the accuracy of the aphorism, "Action speaks louder than words".

However, recognition of excellent medical care soon penetrates to the surrounding community, which will then demand its share of such services. If the professional staff of a hospital rendering these services yields to these pressures, giving more time to private patient care, the training programs must suffer. Therefore, an institution committed to training medical personnel remains constantly torn between these internal and external pressures. The only solution to these issues if proper teaching is to be maintained or improved, is

to increase the teaching personnel as service to the community is increased. Consequently, a period of fairly rapid growth should be expected of any institution with extensive teaching committments provided the adjacent community needs and can absorb the services it offers as a necessary highly desirable by-product of its teaching. The increasing awareness of the lay public of advances in medical science, of the very large role played by all hospitals in medical care today, and of the growing importance of medicine as a science in patient care are all emphasizing the position of the large hospital. These facts are part of the explanation behind the increasingly important part teaching hospitals are playing in most areas.

Cheves Smythe, M. D.

POPULAR MISCONCEPTIONS ABOUT IMMUNIZATIONS

Since active artificial immunity is still partially an intricate maze to research workers, it is not surprising that one encounters many patients who do not fully understand its known principles.

In the first place, too many "healthy" people do not realize the value of immunizations, particularly in the absence of an epidemic. The community protection achieved by sufficient reduction of the percentage of susceptibles is known by too few.

Secondly, many parents are unconvinced of the merit of immunization in infancy. Procedures, selected for convenience, which include a check on immunization status on entrance to school have tended to magnify the matter of increasing the resistance of the school child to the detriment of the infant and preschool child, who are at greater risk.

Some do not know what immunizing agents are available while others request shots to prevent diseases for which there is no suitable antigen, such as malaria. Many are not aware of the importance of keeping a record of immunizations received. There is important confusion between tetanus toxoid and tetanus antitoxin. Allied to the belief that the injected antigen is protective in itself are the concepts that protection is either immediate or total or both. These false ideas can undermine public acceptance when a disease develops in a person specifically "immunized" against it. Thinking that protection is immediate fosters delay in securing immunization until an epidemic is at hand.

The belief that active artificial immunity is permanent has some basis in older scientific thought which was later proved incorrect. (This statement does not apply to Salk vaccine as the duration of its protective effects has not yet been determined.)

Misconceptions of the severity of reactions to immunizations are a deterrent to some. Perhaps they had a grandfather who "almost lost an arm" from smallpox vaccination many years ago. They do not realize that improved techniques of antigen purification and administration with better supportive measures have dramatically reduced the incidence and sequelae of untoward reactions.

The prevalence of varying degrees of misunderstanding is one of many signs that medical practice can never be reduced to routine mass techniques. There is more to achieving an optimum immune status for our patients than merely inserting a hypodermic needle in the tissues.

Leon Banov, M. D.

THE NEED FOR NURSES

With the rapid advances in medicine and surgery, it is difficult for all branches of medicine to maintain an equal pace. The nursing profession has made a vigorous effort and with considerable success in keeping pace with these rapid advances.

The National League for Nursing has this year set 300 trained nurses per 100,000 population as the future need for ideal nursing care. It is not anticipated that this goal can be reached prior to 1970. At the present time, there are 430,000 professional nurses or 258 nurses for each 100,000 population. The anticipated increase in population, both the natural increase and the percentage of older people and greater medical insurance coverage, and an increase in the medical services rendered to the public, will require more trained nurses.

A questionnaire sent to thirteen Nursing School superintendents in South Carolina in-

dicated that certain common problems are facing nursing educators. Probably the most common and most immediate need is more teachers. There also appears to be a general deficiency of nurses which ranges from not less than ten percent and in some institutions approaches twenty-five percent. This lack of nurses is likely to be enlarged with the present building progress of our hospitals.

Some of the nursing graduates are attracted out of the state for various reasons, usually higher pay. The answers to the questionnaires showed forty to sixty-five percent of graduates of South Carolina schools seek employment elsewhere than in their alma mater. The basic salaries for nurses ranged from $180 to $235. There was a unanimous opinion that salaries were inadequate to continue to attract good personnel.

Most superintendents of nursing indicated that practical nurses may have to play a larger part in patient care. There were differences of opinion regarding establishing practical nursing schools. Every correspondent felt there would have to be an increase in nurses to staff the enlarging hospitals.

To fill this need there must be larger and possibly more nursing schools. The South Carolina nursing schools have worked diligently to staff our hospitals and other health services adequately. However, there are increasing pleas from all sides for more nurses in all types of nursing care. The administrators of hospitals find themselves being criticized for inadequate nursing services, both by the physicians and by the patients and their families.

Our leaders in nursing recognize that a certain percentage of nurses will be lost each year through the normal channels of marriage, quitting, and poor health. This overall year by year loss is estimated at approximately one-third of each nursing class. This loss is a national loss and does not reflect upon our nursing schools in this state. Of the remaining two-thirds of nurses graduating, by far the majority accept positions in their local hospitals or other nursing services. The question arises of how to best utilize the remaining nurses who do graduate from our state schools.

More use of practical nurses to relieve the clinical nurses for specific jobs, a greater consciousness by physicians of the nurses problem, continued efforts by all interested parties to recruit more students in nursing, more flexibility in nursing curriculum, subsidy of students in nursing by hospitals which have no nursing schools, particularly the Veterans Administration and military forces should provide thought for further studies of this problem.

C. B. Hanna, M. D.

MR. HIGLEY VS. THE MEDICAL PROFESSION

Veterans' Administrator Harvey Higley, addressing the American Legion convention in September, declared that "'a mere decade ago" few would challenge VA care for veterans with non-service-connected disabilities, if they were unable to pay for care and the VA had beds available. "During the past three years", he said, "certain individuals and responsible organizations have opposed hospital benefits for the non-service-connected."

"Some medical men, who usually are keenly aware of the need for proper public relations," said Mr. Higley, "now apparently believe that the public no longer is greatly concerned with the veteran and his problems. And so they no longer hesitate to attack medical care for veterans, with particular reference to those having non-service-connected disabilities."

Actually, the medical profession believes that the public has never been sufficiently informed concerning the veteran and his problems. As stated in the Council on Medical Service pamphlet, *The Trojan Horse* "the facts and philosophy behind the VA program have never been brought clearly to the attention of the American people."

Far from launching an undercover attack on veterans' medical care during a period of public apathy, the House of Delegates of the AMA specifically stated, in 1953, that "Every effort should be made to inform the profession *and the public* concerning the nature of the problem, the position of the American Medical Association and the reasons on which that position is predicated."

Secondly, the medical profession does not attack and has not attacked "medical care for veterans" generally; it has always upheld the provision of care at federal expense for service-connected conditions. Its opposition has been directed solely at federal financing of care for non-service-connected conditions and the presumption of service-connection without adequate grounds.

Thirdly, although the medical profession's present policy was formally stated in 1952, and restated in 1956, the American Medical Association has "challenged" the legislation authorizing non-service-connected care, not merely for a decade, but since 1925, the year after the World War Veterans Act was passed. That opposition was restated in 1926, 1927, 1928, and 1929. In 1930, the Board of Trustees approved

a letter sent by the General Manager to the Veterans' Bureau, protesting against construction of additional hospitals for non-service-connected care; at the June, 1930, session of the House of Delegates, a resolution was adopted recommending that indigent veterans be provided for by state, not federal, agencies.

In January 1933, a statement of A. M. A. policy was submitted to a Joint Committee of Congress which was studying veterans' care. Three A. M. A. representatives appeared before the Committee and went on record as opposing "the provision of free services to veterans whose disabilities are not service-connected." During the period from 1934 to 1951, numerous resolutions were introduced concerning veterans' care, as well as reports on the increasing proportion of non-service-connected care provided by V. A. hospitals and the increase in V. A. hospital construction. Some of these resolutions proposed improvements in methods of providing non-service-connected care as authorized by current legislation, but none of them nullified the Association's previously expressed belief that such care was not a proper federal responsibility.

In 1951, the Special Committee on Federal Medical Services was appointed, which conducted a year-long study of veterans' care and, in 1952, again stated the medical profession's belief that federal veterans' care should be limited to service-connected cases.

The concern over the medical care program for veterans with nonservice-connected disabilities is not, obviously, a new move on the medical profession's part; it has been expressed almost from the start of the program—not merely "during the past three years." Nor is it expressed merely because of a belief that the public is no longer interested—an important part of the medical profession's policy is to augment public interest in veterans' medical care.

Mr. Higley did, however, admit again that Congress should clarify and define the extent of federal responsibility for nonservice-connected care—which is, of course, just what the medical profession has been requesting for years.

Council on Medical Service—AMA

NOTE: Mr. Higley's resignation was accepted in mid-November, effective date not announced.

CORRESPONDENCE

Edwin W. Allen, Jr., M. D.
Swansea, South Carolina

January 7, 1958

Dear Dr. Waring,

Recently I have decided to move back to my old home in Milledgeville, Georgia. I should like to ask a favor of you in an attempt to get a doctor into this particular section of South Carolina. As you probably know both my family and I have a number of interests in middle Georgia—which is my reason for returning.

Swansea is in the "Sand Hills", only 21 miles south of Columbia. I am the only doctor between Cayce, S. C. and North, S. C. (north and south) and between St. Matthews and Leesville (east and west). Therefore my practice is not only in Swansea, but the communities of Gaston, Dixiana, Pelion, Macedon, Sandy Run and Woodford. I work in Lexington, Calhoun, Orangeburg, Aiken and Richland Counties. I am a staff member of the Columbia Hospital and the Baptist Hospital in Columbia.

Swansea is a town of some 1200-1500 people. Farming and a basket factory are the main industries. Many people live here and commute to Columbia and Orangeburg. A clothing factory is supposed to open here shortly.

We have an excellent school system here. The grammar school building is new as is the gymnasium. There are three large churches, the Baptist, Methodist and Lutheran.

One can determine one's income in this locality only by the amount of time that he is willing to work. I should say that $20,000 gross would be expected for the first year. Since there is so much work, I feel that it would be better for two men to come into Swansea together. Each could have more time for himself and his family.

In my opinion some of the world's best hunting and fishing is in this section of the state. There are numerous private ponds in which the doctor is always welcomed. Dove shoots are held almost every day during the season. Quail have been plentiful this year. The Santee-Cooper is only about 30 minutes drive from here. The seacoast is only 1½ hours drive.

I shall appreciate anything that you can do to help me get another doctor (or two) in here. Certainly Swansea needs one.

Edwin W. Allen, Jr., M. D.

TO THE EDITOR:

I greatly appreciate your editorial effort for the Southern in the November Journal. However, I should like to straighten out a few points.

Interest in Southern is very much alive in South Carolina. We had four men on the Miami program from Greenville alone and there were others. Kenneth Lynch was awarded this year's distinguished service medal. Our membership is growing continually in South Carolina where we have nearly 400 members out of 10,000 in the entire South.

In my letter to you, which you so kindly published, I did not intend to be begging for the Southern; I was urging those who have not done so to become a living part of a great and lasting monument to our Association. I was asking our members in South Carolina to avail themselves of the opportunity of linking themselves in a very vital way to an organization which has a great and glowing future. Our home in Birmingham is virtually a *fait accompli*, and the names of all contributors (not the sum of the gift)

will be permanently recorded on the walls of the foyer.

Sincerely yours,
J. W. Jervey, Jr.
Greenville, S. C.

NEWS

EIGHTH DISTRICT MEDICAL SOCIETY HAS MEET

The Eighth District Medical Society of South Carolina held a supper meeting at the Hampton County Country Club November 27, with the Hampton County Medical Society serving as hosts for the affair. Dr. Carr T. Larisey of Hampton, is president of the District Eight Society. Dr. W. L. Young of Hampton, is secretary. They were in charge of arrangements for the district meeting.

Principal speaker was Dr. Kenneth Lynch, Jr. of Charleston, and his subject was "Injuries to the Urinary Tract". Also speaking briefly on the evening program was Dr. Cheves Smythe of Charleston, and his subject was "The Artificial Kidney".

Dr. W. W. King, Jr. of Batesburg has begun the practice of general medicine in Newberry.

Dr. King was graduated from the Medical College of South Carolina in 1956 and for the past year has been interning at Columbia Hospital in Columbia.

He is the son of Dr. and Mrs. W. W. King, Sr. of Batesburg.

Iverson O. Brownell, M. D. and Joseph J. Nannarello, M. D. have announced their association for the practice of Neuropsychiatry, 610 Pendleton Street, Greenville.

AMERICAN COLLEGE OF SURGEONS

Dr. Furman Wallace of Spartanburg is the new president of the South Carolina chapter of the American College of Surgeons.

He was elected November 22 at the eighth annual meeting held in conjunction with the South Carolina Society of Anesthesiologists at Greenville General Hospital.

Other officers are Dr. Asa Scarborough of Greenville, vice president, and Dr. David Watson of Greenville, secretary-treasurer. The new president succeeds Dr. Alton Brown of Rock Hill.

Present officers of the Society of Anesthesiologists, who will serve until May, are Dr. John Doerr of Charleston, president; Dr. James Duncan of Spartanburg, vice president; and Dr. Ray Ivester of Charleston, secretary-treasurer.

Dr. G. E. McDaniel attended the meeting of the Southern Medical Association, serving as vice-chairman of the Public Health Section. At this meeting Dr. McDaniel was elected chairman of the Public Health Section to serve during the coming year.

Dr. James E. Rountree, Aiken surgeon, has been named a Fellow of the American College of Surgeons. Doctor Rountree has successfully met the requirements for membership in the college through his education, training and practice. He is a graduate of the University of Georgia and the Georgia School of Medicine in Augusta. The Aiken surgeon is a native of Metter, Ga.

DR. HAL HOLMES

Presentation of the Citizen's Distinguished Service Award plaque and an address by Senator James Stevens of Horry County, highlighted the annual Veteran's Day activities held in Conway in November.

Dr. Hal B. Holmes was presented the plaque by Gene McCaskill

Following is the summary as presented to the crowd attending the Veteran's Day Program:

By the high caliber of his professional services and his sterling worth as a citizen, Dr. Hal B. Holmes has endeared himself to residents of Conway and Horry County. As a foremost member of the medical profession in Conway, where he has maintained offices for more than thirty years specializing in the practice of surgery, he has had the mind and soul of a true physician. Uppermost in the life and work of Dr. Holmes is the pure joy of healing and the constant realization of his responsibility when dealing with the sick. Throughout the years he has met with gratifying success.

Hal B. Holmes was born on April 30, 1898 in the Good Hope Community of Horry County, South Carolina.

He was graduated from the Burroughs High School in Conway with the Class of 1917, where he was valedictorian and president of the Senior Class. He enlisted in the U. S. Navy for service in World War I, and served in the Atlantic and North Sea theater of operations for two years and two months. Upon his return from the Navy he completed his pre-medical studies in three years as an honor graduate at the University of South Carolina, while teaching and working his way through college. He then entered the Medical College of South Carolina, graduating in 1926.

After interning at Roper Hospital, Charleston, Dr. Holmes began active private practice at Conway. During the following years he has kept abreast of the ever changing developments in medicine and surgery by doing post-graduate work in New York and the Charity Hospital, New Orleans. He is a member of the surgical staff of the Conway Hospital and serves on its board of directors. In the establishment of the Conway Hospital Dr. Holmes labored faithfully in every capacity, often relinquishing his professional fees and contributing to current bills to keep the

small hospital going. In addition to his services as surgeon and physician, Dr. Holmes served as the only radiologist at the institution for many years.

Dr. Holmes is now president of the Horry County Medical Society and belongs to the Pee Dee Medical Association, the South Carolina Medical Association, the Tri-State Medical Society, and the American Medical Association.

Beloved by all, Dr. Holmes, as a true family physician, has contributed immeasurably to his compassion for his fellow man and his zeal for his profession. Actual records of the county show that Dr. Holmes has cared for more than half the indigent of his community with no thought of compensation, save in the hearts of those to whom he ministered. His cheery bright manner, cordial to all, overlooking none with whom he comes in contact as he goes whistling through the corridors of the Conway Hospital, has dispelled the gloom and care of countless numbers as he treats both soul and body.

Dr. L. E. Kirven has opened an office in West Columbia for the practice of General Medicine.

The location of Dr. Kirven's office is in the east wing of the Carolina Rest Home on U. S. Highway No. 1.

ABSTRACT

A New External Cutter in Varicose Vein Surgery by Richard S. Wilson, M. D., Furman T. Wallace, M. D. and Walter Thompson, M. D. (Spartanburg) American Surgeon 23:917, October, 1957.

A technique using a new extraluminal cutter over an intraluminal guide supplemented by direct excision is recommended in the surgical treatment of primary varicose veins. It is now well established that the optimum treatment is high saphenous ligation with securing of the tributaries and removal of the diseased superficial veins.

A cylindrical cutting head 1 cm. in diameter has been mounted on a long shaft. After an intraluminal flexible stripper has been inserted into the vein as a guide, the extraluminal cutter is passed over the vein and cleanly divides the communicators and perforators at their junction with the main saphenous trunk. This permits easy removal of the entire vein from the groin to the ankle. The hazard of deep venous thrombosis and mutillation of long segments or vessels by blunt avulsion is avoided by the sharp cutter. The combined technique has the advantages of reducing operating and anesthetic time, permitting treatment of both extremities at one time. Quick removal of the saphenous trunks by stripping leaves operating time for direct dissection and excision of remaining venous variations.

RADIATION HAZARDS

I was amazed to learn that many well known maternity hospitals still insist on routine thymus plates on all newborn and x-ray treatment if a thymus shadow is visualized. This seems incredible. Certain young pediatricians who object to the procedure on arriving in a community find that they are referred no babies until they comply. I would be more than interested if anyone who has knowledge of this practice in his area would send me a personal note with details. I will not use names, but the assembled information would carry weight.

"Routines" are responsible for much unnecessary exposure. One member called our age the "Era of Ruling Out". This ruling out philosophy has become too great a part of medical thinking to the exclusion of sound proven medical principles that dictate the importance of a good history and physical examination. Examples of current "Routines" were given:

The routine G. I. series ordered stat in every vomiting baby.

The routine photofluorogram ordered on every admission as he passes thru the admitting room, to be followed the next day by routine 14 x 17 flat films.

The routine photofluorograms on all personnel.

The routine photofluorogram or conventional films on all pregnant women.

The routine x-ray pelvimetry on all pregnant women.

The routine x-ray dental survey in both mothers and children.

The routine frequent follow-up films on medical and orthopedic conditions beyond the number actually indicated.

The unnecessary radiation of mothers and children from dental x-rays deserves special mention. A survey of dental x-ray machines revealed one-third were bad, one-third were not good, and one-third were good from the point of view of calibration, shielding, scatter, etc. Many had no filters, diaphragms or lead shields. One physician placed a cassette behind his head while a dental survey was being made. When developed, he had a perfect x-ray picture of his entire skull. Many dental films are taken with the target directed directly at the gonads. An approved x-ray machine with proper filters and diaphragm, with the patient shielded will deliver a very tiny dose to a sharply defined jaw area. The dentists themselves are properly concerned, not only for their patients, but also because they themselves have been receiving unnecessary x-ray exposure over many years.

News Letter—Amer. Acad. of Pediatrics

FOGARTY SEES ACTION ON SOME FORM OF FORAND BILL THIS YEAR

Rep. John Fogarty (D., R. I.), chairman of the House subcommittee that handles appropriations for nearly all U. S. health programs, predicts that Congress will vote a program of federal assistance to the aged for their hospital needs in 1958. The major bill on this subject is sponsored by a fellow Rhode Island Democrat, Rep. Aime Forand. It would amend the

social security system to permit the aged social security beneficiaries and their dependents and survivors to get free hospitalization and surgical services. The bill has the official support of the 13½-million member AFL-CIO.

Speaking to a meeting of the Washington chapter of the National Association of Social Workers, Mr. Fogarty cited several reasons for his belief that Congress would enact some legislation on hospitalization for the aged: (1) growing unemployment, which he feels may reach 6 million by next March, will put pressure on legislators to do something, and (2) it is an election year. The Forand bill can be amended, he said, and the final measure may not resemble it as now written.

The Rhode Island congressman also favors increasing monthly social security benefits, reducing the retirement age for both men and women to 60 and making social security payments available to the disabled regardless of age.

The AFL-CIO at its annual convention urged liberalization of social security, indorsed the Forand bill and proposed a 10-year extension of the Hill-Burton hospital construction program.

H. H. Addlestone, M. D., announces the association of Alfred E. Rawl, Jr., M. D., in the practice of Radiology at St. Francis Xavier Hospital, Charleston.

MEDICAL RESEARCH FOUNDATION ESTABLISHED FOR TAY-SACHS' DISEASE AND ALLIED DISORDERS

A new non-profit foundation has been established to support and stimulate research, clinical, and educational programs in Tay-Sachs' disease and allied heredo-familial, neuro-degenerative diseases of infancy and childhood. The scope of the program will include, in addition to Tay-Sachs' disease, Niemann-Pick's disease, infantile Gaucher's disease, Schilder's disease, diffuse sclerosis, amyotonia congenita, Friedréich's ataxia, and others. The foundation is known as National Tay-Sachs Association, Inc., New York Chapter, and is composed of parents who have had afflicted children, interested laymen, and medical personnel in the field.

The foundation is cooperating with the existing clinical and research program on Tay-Sachs' disease and certain of these allied diseases at Jewish Chronic Disease Hospital in Brooklyn, New York. The hospital is at present conducting a special clinic for outpatient care of afflicted children, and is constructing a special ward for the care and observation of inpatient cases. Both of these programs are being conducted in conjunction with the laboratory research program of the Isaac Albert Research Institute of the hospital. A comprehensive genetic study is also being made of the pertinent hereditary patterns from histories supplied by the foundation and parents who have children under the care of the hospital. A counseling program is also offered.

The operation of the foundation is on a nationwide basis, and contact is being made for establishment of chapters in other metropolitan areas, in addition to the allied Tay-Sachs Association in Philadelphia. In order to further its work and, in particular, to prepare a substantial genetic study covering the entire country, physicians and hospitals are respectfully requested to make the existance of the foundation known to parents of children afflicted with these diseases.

For further information on the foundation and its work, write to Medical Committee, National Tay-Sachs Association, Inc., New York Chapter, P. O. Box 1250, G. P. O., New York 1, N. Y.

The Foundation is not primarily interested in the solicitation of funds through campaigns, but is more concerned with (1) interesting physicians, hospitals, medical centers, and medical schools in the field of heredo-familial neuro-degenerative diseases occurring in infancy and childhood, and encouraging them in doing research in this field, and (2) in acting as a central clearing house or registry for those families which have had, or have infants and children with these diseases, and thus collect full case histories which will be available for complete genetic studies. All money which will be received is solely for research purposes. The Foundation has no paid employees. In lieu of any solicitation of funds from the general public, The Foundation traces down and locates sources of medical grants which interested physicians and researchers can make application for.

Henry C. Heins, Jr., M. D. and Thomas G. Herbert, Jr., M. D. announce the removal of their offices to 59 Bee Street, Charleston.

Seven million dollars have been contributed today by the Government of the United States to the heads of the World Health Organization and the Pan American Sanitary Organization in furtherance of the work of those international agencies in assisting governments throughout the world to eradicate malaria.

Infecting some 250,000,000 persons each year, malaria is still the most prevalent and most costly disease in many countries, in its toll of human lives and suffering, and in its social and economic effects on nations and people. In recognition of this situation, and armed at last with effective weapons to combat it (the residual insecticides such as DDT to destroy the mosquito vectors that spread it), concrete planning was initiated a few years ago for its eradication. At its XIV Conference in Chile in 1954, the Pan American Sanitary Organization launched the first such program in a major area of the world, aimed at the eradication of malaria from the Americas.

In a similar action taken in Mexico in 1955, the VIII World Health Assembly extended the eradication program to embrace the whole world. The special Malaria Eradication Funds were set up outside the regular budgets of WHO/PASO to help meet the considerable cost of this work. The Organizations in-

vited voluntary contributions to these Funds, over and above the regular, assessed quota payments made annually by their member governments. —There are 88 nations, members of WHO; the PASO includes as members the 21 American republics and France, the Netherlands and the United Kingdom on behalf of their territories in the Western Hemisphere.—

THE FORD FOUNDATION
Privately Supported Hospitals Receiving Final Grants and Payments During The Year Ended September 30, 1957

	1957 Payments	*Total Grants*
South Carolina		
Anderson County Hospital, **Anderson**	63,200	126,400
St. Mary's Hospital, **Anderson**	5,000	10,000
Marlboro County General Hospital, **Bennettsville**	19,700	39,400
Camden Hospital, **Camden**	19,100	38,200
Baker Memorial Sanatorium, **Charleston**	13,700	27,400
Roper Hospital, **Charleston**	123,750	247,500
St. Francis Xavier Hospital, **Charleston**	29,550	59,100
Good Samaritan-Waverly Hospital, **Columbia**	14,750	29,500
Providence Hospital, **Columbia**	28,150	56,300
Ridgewood Tuberculosis Sanatorium, **Columbia**	13,550	27,100
South Carolina Baptist Hospital, **Columbia**	67,250	134,500
Conway Hospital, **Conway**	23,050	46,100
St. Eugene Hospital, **Dillon**	13 950	27,900
McLeod Infirmary, **Florence**	51,250	102,500
Saunders Memorial Hospital and Clinic, **Florence**	17,150	34,300
Georgetown County Memorial Hospital, **Georgetown**	14,150	28,300
Greenville General Hospital, **Greenville**	250,000	250,000
Shriners Hospitals for Crippled Children, **Greenville**	17,750	35,500
St. Francis Hospital, **Greenville**	27,750	55,500
Self Memorial Hospital, **Greenwood**	27,750	55,500
Byerly Hospital, **Hartsville**	25,000	50,000
Joanna Memorial Hospital, **Joanna**	5,000	10,000
Kelley Memorial Hospital, **Kingstree**	9,550	19,100
Marion Sims Memorial Hospital, **Lancaster**	18,050	36,100
Berkeley County Hospital, **Moncks Corner**	7,850	15,700
Newberry County Hospital, **Newberry**	11,550	23,100
Cannon Memorial Hospital, **Pickens**	27,100	27,100
Ridgeland Hospital, **Ridgeland**	6,600	13,200
St. Philip's Mercy Hospital, **Rock Hill**	19,500	39,000
Oconee Memorial Hospital, **Seneca**	15,650	31,300
Mary Black Memorial Hospital, **Spartanburg**	11,050	22,100
Community Hospital, **Sumter**	5,000	10,000
Tuomey Hospital, **Sumter**	35,050	70,100

ANNOUNCEMENTS

The Southeastern Surgical Congress will hold its Twenty-sixth Annual Assembly in Baltimore, March 10, 11, 12, 13, 1958. Among the speakers will be Dr. Edward F. Parker of Charleston who will talk on "A Measurement of the Contractile Force of the Ventricle During Cardiopulmonary By-pass", and Drs. J. Manly Stallworth, William H. Lee, Charles Belisle, and Daniel B. Nunn of Charleston, who will present a paper on "A Clinical Comparison of the Effects of Commonly Used Vasodilator Drugs on Arterial Diseases".

GREENVILLE POST GRADUATE SEMINAR

April 1, 2, & 3, 1958

Greenville General Hospital

The Greenville Post Graduate Seminar will have its annual program at the Greenville General Hospital April 1, 2, and 3, 1958. The following honored guests will have part in the Seminar and the Seminar feels very grateful to have them take part in this program. Among those attending will be:

Dr. Edgar Hull—Louisiana State University School of Medicine
Dr. Peter Gazes—Medical College of South Carolina
Dr. Ben Gendel—Emory University
Dr. Claude Frazier—Asheville, North Carolina
Dr. Jack Norris—Atlanta, Georgia

Others attending from the Medical College of South Carolina will be Dr. John Cuttino, Dr. Fred Kredel, Dr. John Siegling, and Dr. Ed Boyle.

On Wednesday evening, the second of April, a banquet will be held at the Greenville Country Club in conjunction with the meeting of the Greenville County Medical Society.

It is expected that eighteen hours of category one accreditation by the American Academy of General Practice, will be granted this Seminar.

ACADEMY OF GENERAL PRACTICE MEETS NEXT MARCH IN DALLAS

The American Academy of General Practice Tenth Annual Scientific Assembly will give more than 8,000

family doctors, residents, interns and guests an opportunity to hear 35 medical experts discuss subjects ranging from teen-age problems to old-age problems and from heart disease and ulcers to eye ailments, fractures and the hypnotized patient. The four-day Assembly opens March 24 in the new Dallas Memorial Auditorium.

More than 90 scientific and 300 technical exhibits will supplement the scientific lecture program.

Special activities are planned for the Academy's tenth anniversary Assembly.

The International Society of Internal Medicine has announced that its Fifth International Congress of Internal Medicine will be held at the new Sheraton Hotel, Philadelphia, Pennsylvania, April 24-26, 1958. This will be the first meeting of the Society outside of Europe.

At the Philadelphia Congress it is planned, through lectures and panels, to analyze medical achievements of world-wide significance, to evaluate certain apparent problems and to chart courses of action designed to enhance technical knowledge and to aid in the continuing war against disease. At the same time, the plan includes such social and cultural activities as will tend to promote cooperation, friendship and mutual understanding among physicians and peace among their countries.

The 1958 Annual Session of the American College of Physicians will occur in Atlantic City, April 28 to May 2, immediately following the Philadelphia Congress. The members of the Congress are invited to attend all the scientific programs and extensive exhibits (the foreign members on a purely courtesy basis).

The World Congress of Gastroenterology and the 59th Annual Meeting of the American Gastroenterological Association will be held in Washington, D. C., U.S.A., at the Sheraton Park Hotel, May 25th to 31st inclusive, 1958. The scientific meetings of the Congress will occupy Sunday, Monday, Tuesday, Wednesday and Thursday and the 59th Annual Scientific Session of the American Gastroenterological Association will take place Friday and Saturday. The objective of this Congress is to bring together scientists, from all parts of the globe, who are actively contributing new knowledge and experience in the fundamental sciences or in the clinical behavior patterns related to disorders of the alimentary tract.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE
SIXTH CONGRESS — MIAMI, FLORIDA
McALLISTER HOTEL, APRIL 14-17, 1958

The Department of Psychiatry of the University of North Carolina School of Medicine (Dr. George C. Ham, Professor and Chairman of the Department and Dr. Lucie Jessner, Professor and Director of the Child Psychiatric Section) announces the opening on February 1, 1958, of a nine bed Child Psychiatric Inpatient Service in the North Carolina Memorial Hospital for intensive diagnostic evaluation and short term therapy of emotionally disturbed children under twelve years of age. Children may be referred as private or as staff patients from North Carolina and as private patients from other states. Inquiries should be addressed to the Admissions Officer, Psychiatric Center, N. C. Memorial Hospital, Chapel Hill, North Carolina.

POSTGRADUATE COURSE ON DISEASES OF THE CHEST

The Council on Postgraduate Medical Education of the American College of Chest Physicians will sponsor the Fourth Southern Postgraduate Course on Diseases of the Chest at Grady Memorial Hospital, Atlanta, Georgia, March 10-14, 1958.

The most recent advances in the diagnosis and treatment of chest diseases—medical and surgical—will be presented. The tuition fee is $75 including round table luncheons.

The Fifth International Congress of Internal Medicine which is to be held in Philadelphia on April 23-26, 1958.

The second annual Post Graduate Course in FRACTURES AND OTHER TRAUMA will be given by the Chicago Committee on Trauma of the American College of Surgeons, for four days from Wednesday, April 16 through Saturday, April 19, at the John B. Murphy Memorial Auditorium, 40 East Erie Street, Chicago.

SOCIAL SECURITY SAYS: "It is common knowledge that most of us because of living costs, social standards, and economic misfortunes, do not set aside enough money or other assets during our working years to provide adequately for ourselves or our families when earned income is cut off by disability, old age, or death."

In Other Words: Social Security believes that "most of us" must depend upon the government in our "hour of need."

SOCIAL SECURITY SAYS: "Your social security taxes pay for these nine programs:

Social Insurance

(a) Unemployment insurance

(b) Old Age and Survivors Insurance

Public assistance to the needy

(a) Old-age assistance

(b) Aid to the needy blind

(c) Aid to dependent children

(d) Aid to the permanently and totally disabled

Children's services:

(a) Maternal and child-health services

(b) Services for crippled children

(c) Child-welfare services

In Other Words: In spite of the fact that most of these represent federal grants to state aid, this Social Security program is being sold to you and me as "contributory social insurance."

SOCIAL SECURITY SAYS: "The following table shows the present tax rates and the scheduled increases: (on $4200 wage base)

Calendar year	Employee	Employer	Self-Employed
1956	2%	2%	3%
1957-59	2-1/4%	2-1/4%	3-3/8%
1960-64	2-3/4%	2-3/4%	4-1/8%
1965-69	3-1/4%	3-1/4%	4-7/8%
1970-74	3-3/4%	3-3/4%	5-5/8%
1975 and after	4-1/4%	4-1/4%	6-3/8%

In Other Words: A recent announcement stated that the Social Security system is in trouble. Benefit funds are melting as applications pour in at a rate in excess of Federal estimates. HEW Secretary M. H. Folsom was quick to say that expenditures may exceed income in 1959, but higher taxes in 1960 will cover the deficit. Check the chart above for proof that our children will be paying the bills for our benefits.

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1. The American Hospital Association is convinced that retired aged persons face a pressing problem in financing their hospital care.

2. It believes that federal legislation will be necessary to solve the problem satisfactorily. It has, however, serious misgivings with respect to the use of compulsory health insurance for financing hospital care even for the retired aged.

3. It believes that all possible solutions must be vigorously explored including methods by which the dangers inherent in the Social Security approach can be avoided.

4. It believes that the use of Social Security to provide the mechanism to assist in the solution of the problem of financing the hospital needs of the retired aged may be necessary ultimately. However, it believes that every realistic effort should first be made to meet these needs promptly through other mechanisms utilizing existing systems of voluntary prepayment.

AMA News Letter

THE CONSULTANT'S REPORT

Re: Mrs. Blatz

Dear Doctor:

Rummaging in my desk today I came across a folder which reminded me that I had not reported to you on the patient, Mrs. Blatz, whom you sent to me several months ago. I am sure you will understand that we consultants to whom important cases are referred find it difficult to get our thoughts collected promptly, and naturally we are not bothered, as you would be, by the importunities of the patient and family in reference to the urgent situation which you and I discovered.

The above-captioned patient (whatever that means) was seen by me after an exhausting series of tests ranging from the Abderhalden reaction to Zangemeister's test. A number of these tests were slightly positive, while others which were repeated were contradictory to themselves for some strange reason, and we were finally driven to pouring the liquid elements into the sink and the solids into the usual receptacle. During this process it was discovered that the patient was still alive, and strenuous efforts were made to revive her to the point that a physical examination could be done. As the event seemed doubtful, we quickly repeated all our tests, maintaining the patient in an iron lung with the help of oxygen and a number of the latest stimulant drugs, and finally we were able to make rapid but minute examination of all of the several systems, ruling out this and ruling out that in very short order. After all the ruling out, the patient was found to have an extremely unusual condition, a single case of which has been described by Kunkel, Furstenburger, Gerstenberger, and Klunk in the Zeitschirt für Pure Balogny, Vol. 58, p. 299. We would like very much to have investigated this condition further, but as the patient had already exhausted all her insurance and such funds as she could beg, borrow, or steal, we were forced to discharge her with her condition incompletely diagnosed.

After her recovery from her examination, she was sent home to convalesce from her experience, and we would like very much to have daily reports on her progress.

Enclosed herewith is a 16-page single-spaced, electrically typed report in which we conclude in well chosen vague phrases that this is an extremely interesting case and that we will agree fully with your diagnosis whenever it may be made.

Yours in science,